COMMUNICATING U.S. GEOLOGICAL SURVEY WATER-QUALITY DATA USING HEALTH-BASED SCREENING LEVELS

Patty Toccalino[1], Lisa Nowell[2], Mark Ayers [3], Joyce Donohue [4*], Catherine Eiden [5], Gloria Post[6], and Sandra Krietzman[6]

[1]Oregon Health & Science University, 20000 NW Walker Rd., Beaverton, OR 97006
[2]U.S. Geological Survey (USGS), Placer Hall, 6000 J Street, Sacramento, CA 95819
[3]USGS, 9818 Bluegrass Parkway, Louisville, KY 40299
[4*]U.S. Environmental Protection Agency (USEPA), Office of Water, 4304T, 1200 Pennsylvania Avenue NW, Washington, DC 20460
[5]USEPA, Office of Pesticide Programs, 57509C, 1200 Pennsylvania Ave, NW, Washington, DC 20460
[6]New Jersey Department of Environmental Protection (NJDEP), 401 E. State Street, Trenton, NJ 08625

Biographical Sketch of Authors

Patty Toccalino is an Assistant Professor in the Department of Environmental Science and Engineering at the Oregon Health & Science University. Lisa Nowell is a Chemist with the Pesticides National Synthesis Project of the USGS National Water Quality Assessment Program (NAWQA) program. Mark Ayers is currently the USGS District Chief in Kentucky, and was formerly the Project Chief of the Long Island-New Jersey NAWQA study unit. Joyce Donohue is a Program Manager and Toxicologist in the Health and Ecological Criteria Division of the Office of Science and Technology of the Office of Water at USEPA. Catherine Eiden is a Senior Scientist in the Health Effects Division of the Office of Pesticide Programs at USEPA. Gloria Post is a Research Scientist in the Division of Science, Research and Technology at NJDEP. Sandra Krietzman is an Environmental Scientist in the Water Supply Administration at NJDEP. Each author has contributed to a collaborative interagency pilot effort in New Jersey to communicate the significance of the water-quality findings of the USGS NAWQA Program in a human-health context.

Abstract

The U.S. Geological Survey (USGS) is conducting an interagency pilot project with the New Jersey Department of Environmental Protection and the U.S. Environmental Protection Agency (USEPA) to develop, test, and refine approaches to more effectively communicate USGS water-quality information in a human-health context to a variety of audiences. Historically, the USGS has assessed water-quality conditions by comparing water concentration data collected by its National Water-Quality Assessment (NAWQA) program against established drinking-water standards and guidelines. However, because drinking-water standards and guidelines do not exist for many NAWQA analytes, this approach has proven to be insufficient for placing NAWQA data in a human-health context. For this pilot project, contaminants detected in ground water collected as part of the NAWQA study in Glassboro, New Jersey, will be separated into two categories, regulated and unregulated compounds. Regulated compounds have USEPA Maximum Contaminant Levels and/or State drinking-water standards, and unregulated compounds do not have Federal or State drinking-water standards. Contaminant data for regulated compounds will be compared to Federal and State drinking-water standards. For unregulated compounds, contaminant data will be compared to "health-based screening level concentrations" for noncarcinogens and to "screening level ranges" for most carcinogens. The screening levels for unregulated noncarcinogens and screening level ranges for unregulated carcinogens will be based on USEPA Office of Water methodologies for calculating lifetime health advisory and risk specific dose values, respectively. The application of these screening levels will be examined to determine if their use enhances the utility of NAWQA water-quality findings. The findings from the pilot project can potentially be used to identify those regulated and unregulated contaminants that may warrant further attention, such as additional monitoring or management, and these findings will be communicated in collaboration with the appropriate State agencies and the USEPA.

[*]The opinions expressed in this abstract represent those of the author and are not necessarily the opinion or policies of the USEPA.